KEY SUCCESS FACTORS FOR FLIPPED CLASSROOM IN IMPLEMENTATION: A LITERATURE REVIEW

[1]HUSNUL MA'AD JUNAIDI, [2]SITI CHOLIFAH

Information System of STMIK Indonesia Banjarmasin, Information System of STMIK Indonesia Banjarmasin
E-mail: [1]husnul.maad@gmail.com, [2]siti.cholifah.banjarmasin@gmail.com

Abstract- Flipped the classroom has become an increasingly popular approach to meeting the learning in classroom. In flipped classroom the lecture normaly delivered in-class, are assigned as homework and quiz in the form of video or podcasts and assignments learning and it is reverse of the traditional classroom. The flipped classroom in which digital technologies are used to transfer direct instruction outside of the classroom to an individual learning space. Offloading direct instruction in this way allows teachers to reconsider how to maximize individual face-to-face time with students. Therefore, flipped classroom is based on the idea students watched the videos or completed the reading at home, students can respond to "clicker questions" to report their progress as they work on the exercises. Finally, the learning activities as well as the assigned homework in flipped teaching model very widely between studies.

keywords- flipped-classroom; learning; increasing; students;in-class (key words)

I. INTRODUCTION

The flipped classroom (or flipped) is a new education technique which seek to invert the traditional model of in-classroom lectures and out-of-class homework [1]. Instread, it advocates in-class interactive group learning, and out-class instruction via video or podcasts. Intuitively, this approach moves classroom time away from mere dissemination of information, and allows teachers to focus on solving student problems and anabling learning.

The flipped-classroom network, a group of educators dedicated to advancing the flipped learning mode, has developed the following four pillars of flipped learning [2]:

1. Flipped learning creates flexible learning environments, allowing students to learn where they want to learn and when they want to learn.
2. Flipped learning creates "student-centered" classroom in which students are actively involved in knowledge construction.
3. Flipped learning requires instruction to evaluate what material should be directly taught in video lectures outside of class in order maximize in-class active learning time.
4. Flipped learning requires instructors to facilitate students in active learning environments, providing feedback and guidance as students construct knowledge.The purpose of this research literature review were to serve three goals. The first goal was to analyze some success keys in Flipped Classroom implementation. Second, it would be useful to researchers who were interested in understanding the relation between Critical Success Factor in Flipped Classroom. Third, the research would give contribution in learning process and learning outcomes. Therefore, the research tries define "what key success factors influence the implementation of flipped classroom?". The definition and describe the flipped classroom as an educational technique that consists of two parts : interactive group learning activities inside the classroom, and direct computer-based individual instruction outside the classroom [3].

II. METHODOLOGY

The process research a thorough of literature review on key success factors flipped classroom in implementation. The process review of articles the follow: step first, the searching process of paper and jurnal, using keywords: (flipped classroom **And/or** model), (flipped learning **And/or** case study), (flipped learning **and/or** implementation), (flipped learning **or** flipped classroom), (Flipped classroom **And** activitity) step second, process classified to Maintaining the Integrity of the Specifications paper and journal. The clasification based on publisher, author, year of publication. Step third, the selection review the concentrated on keyword, papers and journals that are not use to be set aside. The process searching paper and journal, each retrieved paper and journal had to be published and it would be extracted focusing on the year of publication, that was publication between 2013 until 2017.

A. Search Process

The process searching is defining the source of literature journal and paper to find a suitable. The process selected a source for systematic literature review as follow :

1. Google Scholar (www.google scholar)
2. Schopus (www. Schopus)

3. Springer Link (Link.springer.com)
4. Emerald Insight (www.emeraldinsight.com)

The pattern of keyword in used and in applied to find of searching papers and journal which related to answer the research question. Use keyword in symbol of Boolean operat ors, such as OR, AND or combnation of OR and AND.

B. Data Extractions

The process searching study literature was examined 194 paper and journal from all resource and criteria. The 194 paper was examined, there are 77 paper and journal which being to be candidate study based on related title and abstract that can to be reseach question. After studies further there are 23 paper that can be used in research.

TABEL 1
DATA EXTRACTION IN INCLUTION CRITERIA

No.	Data extraction			
	source	*Found*	*Candidate*	*Selected*
1	Google Scholar	77	31	9
2	Schopus	95	35	10
3	Springer Link	17	8	3
4	Emerald Insight	5	3	1
Total		194	77	23

III. EXTRACTION RESULT

TABLE 2 NUMBER OF PAPERS IN EACH JOURNAL

No.	Number of paper in each journal	
	Journal name	*Jumlah*
1	Issues in InformatingSciense And Information	1
2	J SeiEducTechnol	1
3	Australasian of Educational Technology	1
4	International Conference on e-Learning	2
5	Journal of Instructional Pedagogies	1
6	Journal of telecommunication, Electronic and Computer Engineering	2
7	International Education Research	1
8	Proceeding of ASBBS	1
9	American Journal of Pharmaceutical Education	1
10	Journal Medical Education	1
11	120th ASEE Annual Conference & Exposition	2
12	Journal LexisNexis	1
13	The Journal of Distance Education and e-Learning	2
14	International Journal of Mathematical Education in Science and Technology	1
15	American Society for Engineering Education	1
16	Language Learning & Technology	1

The process searching engine in extraction data using google scholar, Schopus, Spinger link, Emerald Insight. Searching engine using to find paper with category in keyword. Keyword using: (flipped classroom and flipped learning) the search resulted 87 papers, paper with keyword (flipped learning and implementation) the searching process resulted 58 papers, paper with keyword (flipped classroom and activity) the searching process resulted 49), paper with keyword (flipped learning and case study) the search process resulted 23 papers. All papers to get search (194 papers)then the selected to get candidate papers. The papers resulted selection then the read and to get conclusion and to get abstract. The selection process from retrieved papers to resulted selection then the reading for get to abstraction and tto get answerd research question. After all those papers result searching and selection then to get 41 papers. There were only 23 papers (11 %) out of 194 papers. The complete list of 23 papers selected and the read can the show in table 1 for paper and jurnal for result in process search engine, 194 papers surveyed were writted primarily on flipped classroom and/or flipped learning, flipped learning and implementation, flipped classroom and activity, flipped learning and case study.

TABEL 3. LIST OF AUTHORS' DISCIPLINE OF EXPERTISE

No.	List of Authors in Goup		
	Discipline	*jumlah*	*%*
1	Education Flipped	18	23%
2	Information Systems	21	27%
3	Computer Science	20	26%
4	Science and Technology	13	17%
5	Engineering	5	6%
Total		77	100%

IV. RESULT AND DISCUSSIONS

The comprehensive literature review for each paper and journal was to determine the themes. This classification on based on the ourthor's judgment, and showed in table 1 and table 2.

A. Paper's Theme

i. Education Flipped

Education was developed by synthesizing as a result from relevant theories though empirical studies or original

experiences of implementing new pratices. Form literature review that is relevan with theme there were 7 out of 18 papers (39%) discussed education flipped learning, flipped classroom, sharing issue, learning outcome, implementation flipped classroom.

ii. Implementation Experiences

Author's shared their experience in flipped classroom and giving some insight about key success factor for flipped learning in implementation. There were 33% papers or (14 out of 43 papers) discussed the implementation experience. The lesson from these flipped classroom in implementation became

valueable insight for another university and teacher which had a plan to implantation flipped classroom in the future. From implementation experience, sub theme defined integrated among systems or tools to support of flipped classroom, functionality needs to focus on flipped classroom implementation, tool or facilities should be prepared to key success factors for flipped classroom in implantation, learning environment as the main process in flipped classroom became the most discussed a topic by author and the last, collaboration in terms of partnership.

It can be started there is possibility of learning collaboration to share flipped learning material as a way improve flipped classroom contents.

iii. Evaluation Implementation

Evalution is done to enhance and improve flipped learning/flipped classroom quality. There were 26 % (11 out of 41 papers) discussed evaluation or post implementation. This theme focused on evalution after implementation to capture teachers support, flipped learning process, student engagement, technology Information Systems support, satisfication for students and teachers, and regulation. Evaluation/post implementation as an important phase in development flipped learning process to make sure to success of project and objective and to improve flipped learning the future.

TABEL 4
MAJOR THEMES ON THE TOPIC FLIPPED CLASSROOM

No.	Major themes on the topic flipped classroom	
	Topic	*Reference*
1	Flipped Classroom	1;3; 6; 8; 11; 14;15;9;17;19;20;23
2	Techology	2;7;8;21;9;10;14;17;18;19;22
3	Students	6;8;15;9;10;11; 14; 21 ;22
4	Management	2 ; 4;5; 6;7;9;17
5	Lecturer/Teacher	1;7;9;10;14;18;22

A. Success Factors

Base literature study, there were 8 key success factors. All key success factors with brief summary are listed below:

1. Teacher

Teacher is a who shares and transfers knowledge to student. Good knowledge and quality teacher in prepare a give some impact to the flipped learning process. Moreever teacher needs to cummication in group to make sure that they have same flipped learning outcomes.

2. Tools

Tools are hardware, equiptment and operative system administration. Flipped learning in used as flipped classroom content material learning and task, quiz, homework, material debat, regulation, syllabus, and that content interaction between teacher and student.

3. Management

As in learning, flipped learning/flipped classroom will can be impact to learning process that implementation can be impact the ability learning process.

4. Student

Every student need to know about courses, outcomes. This understanding help students to get motivated and engaged.

5. Curiculum

Curriculumisa set of design about courses, outcome, and assessment. Concerns to pedagogical, aspect, structure, and a set of courses is designed to meet the outmaces into curriculum mapping.

6. Process

Processes represent delivery process in flipped classroom, that learning environment creates creativity of determination teaching and learnig strategy through video, etc.

7. Calaboration

Callaboration is a business model that provides partnership among government and universities to improve their learning quality.

8. People

To integration knowledge sharing and identification the person who have experience in flipped classroom/flipped learning usage or consult with expert will minimize technical problems and ensure the readiness of flipped learning.

Tabel 5 - key success Factors mapping to reference

No.	Key success factors	
	factors	*Reference*
1	Teacher/Lecturer	1;2;6:;7;9;10;14;15;18;21;22
2	Student	6;8;15;9;10;11; 14; 21 ;22
3	Management	2 ; 4;5; 6;7;9;17
4	Technology	2;7;8;21;9;10;14;17;18;19;22
5	Curriculum	6: 8;9;10;11,14,15;17;18
6	Processes	4;5;6;17;18;23
7	Communication	;8;10;14;16;17;18

IMPLICATIONS

There are top three factors found from reference reviewed, which are teacher/lecturer in 11 literatures, technology in 11 literatures, curriculum in 9 literatures. These three concern factor are relevant with flipped learning process. School/college needs to prepare a good lecturer/teacher and curriculum and technology of flipped learning process to make sure that the outcomes achievable by student.The

implication for science is about flipped learning environment, some rsearches discuss the idea using video, games, or mobile devices. The interativetools is more interesting for student. Additionay, to implementation of flipped learning/flipped classroom has to concern about technology insfrastructure to support good teaching learning process. Using technology to explore knowledge give advantage to keep student motivation and achieving learning outcomes.

LIMITATION

This paper has a limitation because the number of databases has restricted access from reputable journal and the publication. The publication year should be last five years.

CONCLUSIONS

A research in flipped classroom based on extracting result, the flipped classroom has become an increasingly popular approach to meeting the learning needs of millennial school/college students. The focus is on learning rather than teaching and the approach has been found to increase overall interaction among students and between student and teacher.

REFERENCES

[1] J.M. Fautch.(2015). The flipped classroom for teaching organic chemistry is small classes: is it effective?, Chemistry Education Research and Practice,.

[2] S.R. Davies, D.L. Dean & N. Ball.(2013). Flipped the classroom and instructional technology integration in a college-level information systems spreedsheet course. Education Technology Research and Developmrnt,

[3] Jacob Lowell Bishop, (2013) The Flipped A Classroom: A Survey of the research, 120th ASEE Annual Conference & Exposition,

[4] Tjong Yanti, Key Successful Factors for Virtual University Implementation: A Literature Study, ISSN: 280-1843, e-ISSN: 2289-8131 Vol. 8 No.3.

[5] H. Halili Hajar, Z. Zamzani, flipped the classroom: What Know and What We Don't, the online journal of distance eduation and E-learning, vol. 3, Issue 1.

[6] Sletten Rae Sarah, Investigating Flipped Learring: Student Self-Regulated Learing, Percepttions, and Achievement in an Intriductory Biology cource, I Sci Edue Technol, DOI 10.1007/s 10956-016-9683-8.

[7] Fei Chen, Angela M Lui, Susan M Martinelli, A systematic review of the effectiveness of flipped classroom in medical education, Medical Education 2017 51: 585-597.

[8] Eli Cohen, The Flipped Classroom: A Comparison of Student Performance Using Instructional Videos and Podcasts versus the Lecturer-Based Model of Instruction, Issues in Informing Science and InformationTechnology, 13, 1-13. Retrieved from http://www.informingscience .org/Publications/3461.

[9] Logan Brenda, Deep Exploration of the Flipped Classroom before implementing, Journal of Instructional Pedagogies. Volume 16, july, 2015.

[10] Siti Zuraidah Md Osman, Rozinah JAmaludin, Nur Eiza Mokhtar, Flipped Classroom and Tradisional Classroom: Lecturer and Student Perceptions between Two Learning Cultures, A Case Study at Malaysian Polytechnic, Science and Education Centre of North America, Volume 2, Issue 4(2014), 16-25, ISSN 2291-5273 E-ISSN 2291-5281.

[11] Phillips, Cynthia R., Trainor, Joseph E. Milennial Students And The Flipped Classroom, ASBBS Annual Conference: Las Vegas, Februari 2014.

[12] Daher T., Loehring M., (2016). Shaping the Engineering Freshman Experience through Active learning in a Flipped Classroom, American Society for Engineering Education,

[13] Marika A.T, Lejla A.B., Betim Cico, (2016) Practical Experience the Flipped Learning Model in a Master Course at SEEU, International Conference on e-learning,

[14] Hsiu-Ting Hung, Language Teaching and Technology Forum The Integration of A Student Response System in Flipped Classsrooms, Language Learning & Technology, http://llt.msu.edu/issues/february201/hung.pdf, Februari 2017, Volume 21, Number 1.

[15] Sparks, R, Flipped The Classroom: An Empirical Study Examining Student, Learning in Higher Education, 9(2), 65-70, 2013.

[16] [16] Jianyu, WP., Jianyu, D.(2012). Flipped Learning the Classroom: How To Embed Inquiry and Design Project into a Digital Engineering Lecture. ASEE PSW section Conference, California Politechnic State University, San Luis Obispo,

[17] Majed K., Lee W., Evelyne G., (2017), Engineering Freshman Students' Responses to Flipped Learning Methodology at The American University of Ras Al Khaimah, Proceedings of the joint 8th IFEE2017 and 3rd TSDIC2017: Sharjah, United Arab Emirates, April 18-20 2017.

[18] Wagner, D., Laforge, P. & Cripps, D. (2013). Lecture Material Retention: a First Trial Report on Flipped Classroom Strategies In electronic Systems Engineering at the University of Regina. Paper presented at the Canadian Engineering Education Asssociation Conference, Montreal, Canada.

[19] Wallace, A. (2014). Social Learning Platforms and the Flipped Classroom. International Journal of Information and Education Technology, 4(4), 203-294.

[20] Bishop, J.L. & Verleger, M. A. (2013). The Flipped Classroom: A Survey of the Research. Paper presented at the 120th ASEE Conference & Exposition.

[21] Long, T., Logan, J. & Waugh, M. (2014). Students' Perceptions of Pre-class Instructional Video in the Flipped Classroom Model: A Survey Study. Proceedings of Society for Information Technology & Teacher Education International Conference 2014. VA: AACE.

[22] Roehl, A, Reddy, S. L. & Shannon, G. J. (2013). The Flipped Classroom: An Opportunity to Engage Millennial Students through Active Learning Strategies. Journal of Family & Consumer Sciences, 105(2), 44-49.

[23] Goodwin, B., & Miller, K. (2013). Research Says/Evidence on Flipped Classrooms I Still coming In. Technology Rich Learning. 70(6), 78-80.

★★★